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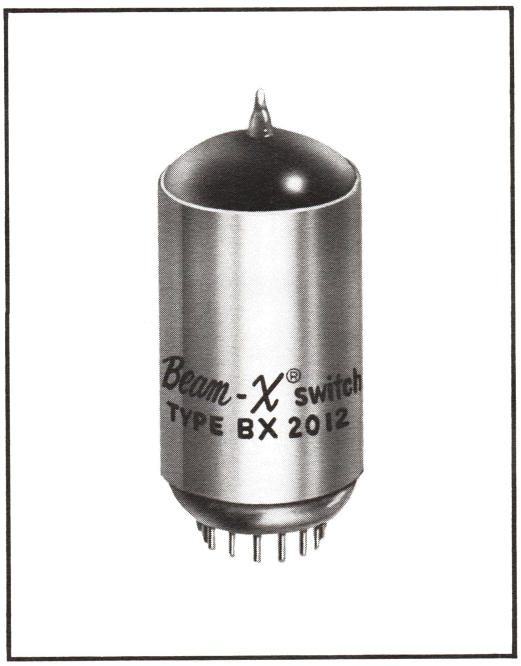
BEAM-X® SWITCH



DECODER

TYPE BX-2012

The BEAM-X Switch, type BX-2012, is a 10 position, high vacuum electronic switching device. It is electrically and mechanically similar to the Shielded General Purpose BEAM-X Switch, type BX-2000; however, it is specifically designed and tested to provide decimal readout of binary-coded-decimal information.

The BX-2012 is tested in the decoding circuit shown in Figure 7. This procedure results in a tube whose characteristics are optimized for this particular mode of operation. This particular circuit uses 8421 code, but other BEAM-X tubes for other codes can be made available.

The decimal outputs of the BX-2012 operate NIXIE® readout tubes directly and provide storage of the binary data in decimal form. Its high speed and simplicity of operation make possible decoding of four line binary data in only 20 microseconds using a single gating control pulse. Use of the BX-2012 makes possible a reduction in component requirements of almost 4 to 1 over other techniques.

MECHANICAL CHARACTERISTICS

	VALUE	NOTES
Overall Length	3.125 in. max.	
Seated Height	2.875 in. max.	
Diameter	1.270 in. max.	
Weight Total	2.75 oz.	
Mounting Position	Any	Note 2
Outline	See Figure 6	
Envelope Connection	See Figure 3	

ELECTRICAL CHARACTERISTICS

RATINGS ABSOLUTE MAX.	VALUE
Target Voltage (E_t)	300 Vdc
Spade Voltage (E_s)	100 Vdc
Grid Voltage (E_{cc})	±100 Vdc
Shield Grid Voltage (E_{sg})	200 Vdc
Heater – Cathode Voltage (E_{hk})	±100 Vdc
Individual Target Dissipation ($P/_{ta}$)	1 W
Heater Voltage (E_f)	6.3 ±10% V

TEST CONDITIONS AND TEST LIMITS

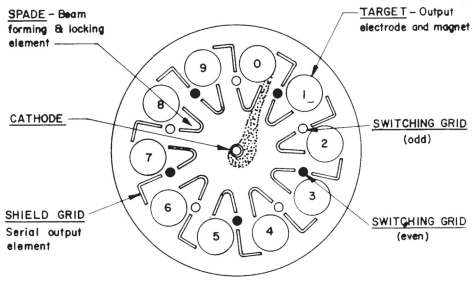
(See Figure 7)

BINARY INPUT INFORMATION

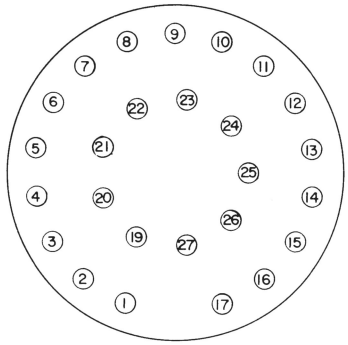
Logic Levels:	Binary "0"	—12 volts
	Binary "1"	0 volts
Read Gate Input:	Amplitude	—9 volts
	Duration	60 μsec.
Supply Voltage (Ebb) Limits		200 volts ±10% (See Note 1)

NOTES

1. The BX-2012 is tested in the test circuit (Figure 7) utilizing the 8421 binary code shown. By setting the binary code and applying the required read pulse, the decimal equivalent of the binary code will appear on the type 8037 NIXIE Indicator Tube. The Supply Voltage (Ebb) is varied over the specified limits to determine the ability of the BX-2012 to decode and store the binary data. The test circuit also represents the recommended operating conditions for this tube type.
2. Tubes may be mounted side by side (no minimum spacing). Tubes should not be mounted on a ferrous chassis.


SPADE – Beam forming & locking element
TARGET – Output electrode and magnet
CATHODE
SWITCHING GRID (odd)
SHIELD GRID Serial output element
SWITCHING GRID (even)

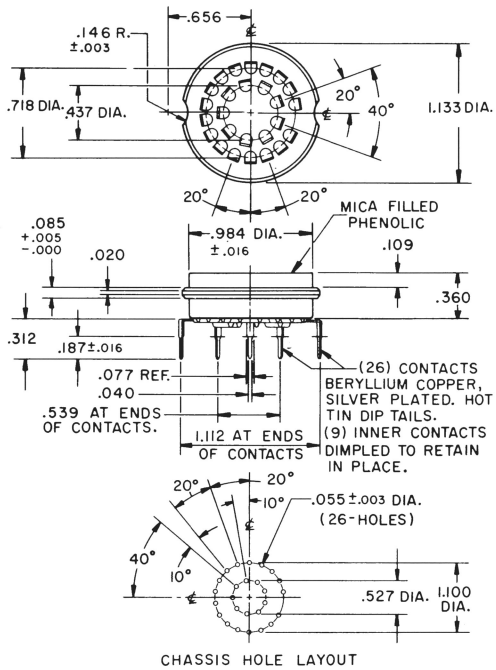
1. CROSS SECTION



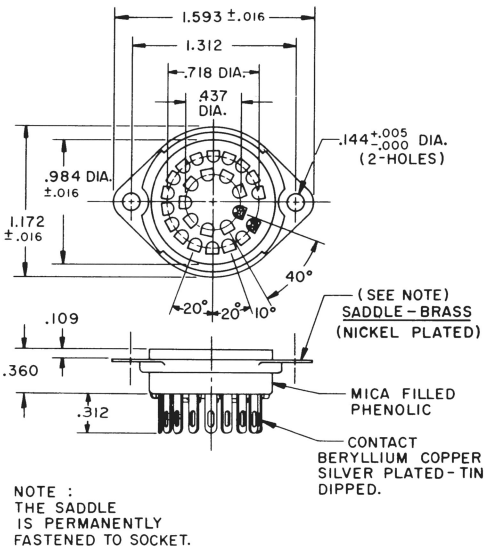
2. PIN NUMBERING DIAGRAM

PIN NO.	CONNECTION	PIN NO.	CONNECTION
1	Spade-0	14	Spade-2
2	Target-9	15	Target-1
3	Target-8	16	Grid Even
4	Grid Odd	17	Target-0
5	Target-7	19	Spade-9
6	Spade-7	20	Spade-8
7	Target-6	21	Heater
8	Target-5	22	Spade-6
9	Spade-5	23	Spade-4
10	Target-4	24	Spade-3
11	Shield Grid	25	Heater
12	Target-3	26	Spade-1
13	Target-2	27	Cathode

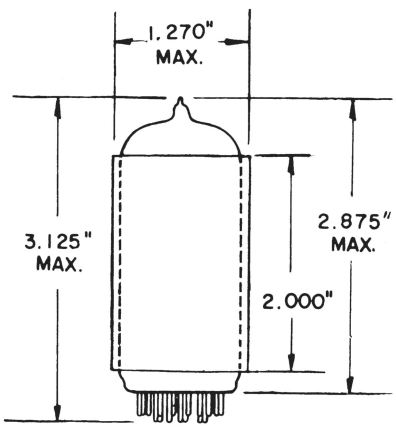
3. TUBE CONNECTION TABLE



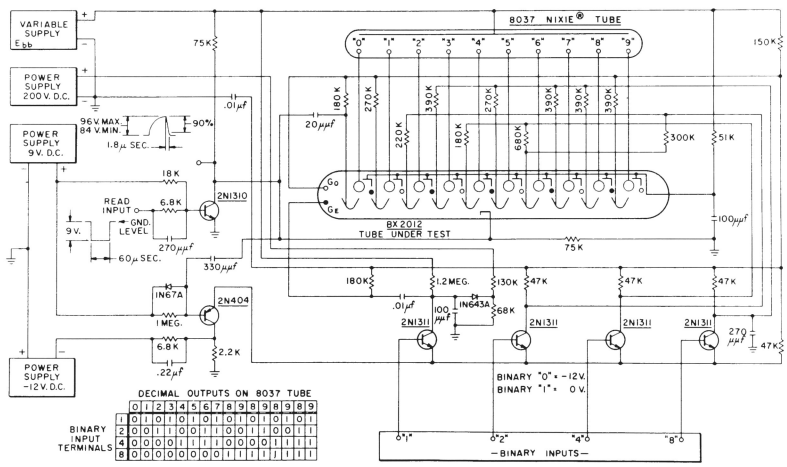
4. PRINTED CIRCUIT SOCKET, SK-131



5. GENERAL PURPOSE SOCKET, SK-100



6. OUTLINE DRAWING



7. TYPICAL TEST CIRCUIT

ANOTHER ELECTRONIC CONTRIBUTION BY

Burroughs Corporation

ELECTRONIC COMPONENTS DIVISION

PLAINFIELD, NEW JERSEY

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